

Colorado Department of Health**Review and Comment**

Draft Phase I RFI/RI Workplan for OU 13 - The 100 Area
May 11, 1992

General Comments:

1) The Phase I RFI/RI Workplan for OU 10 is the first workplan to be finalized in which an investigation of varied IHSSs within the industrialized portions of the plant is presented. While it is not necessary for the OU 13 Workplan to be identical to the workplan for OU 10, please refer to the final version for guidance. There were lengthy sets of comments and long discussions that set many ground rules for investigations in the industrialized portions of the plant and there is no reason to re-invent the same concepts. Some of the items of concern are called out in the following comments. However, in addition to those itemized, any presentation technique in the OU 10 Workplan that would enhance the clarity and/or brevity of this workplan should be incorporated.

2) The Division suggests that the figures and tables presented at the back of each section be placed within the text as near to the point where it is referred to as possible. Reading an explanation in the text and then having to flip back and find the correct figure is very time consuming and inconvenient.

3) The Division suggests that the information in Appendix A be more fully incorporated into Section 2.0. The sub-sections of Section 2.0 that discuss individual IHSSs are only brief summaries of what is presented in Appendix A. The Division believes that Appendix A should only support Section 2.0 and reading it should not be required for comprehensive IHSS understanding.

4) In a staff level scoping meeting held for OU 13 on 12/10/91, equipment accessibility (particularly for drilling rigs) was a major issue. IHSSs 148, 157.1, and 186 were among the OU 13 sites where it was discussed that access would be very difficult. However, this workplan makes only cursory reference to accessibility problems and proposes no strategy for how the FSP can be modified when access precludes certain sample types. This needs to be done. (For example, the workplan for OU 12 proposes the use of an all-terrain vehicle equipped with a hydraulic probing rig for

access to small areas.)

5) The Division has repeatedly asked for a revision to SOP GT.8. The inconsistencies within the workplans for OUs 8, 10, 12, 13, and 14 for soil sampling reinforce the need for this revision. Inconsistencies are also present in the HPGe programs and we have only been assured that an SOP is "under development." Unless and until SOP GT.8 is amended and an HPGe SOP is developed and both are approved, the Division will be unable to judge the adequacy of the FSP and will not approve this workplan.

Specific Comments:

Section 1.0: In the second paragraph of this section, the sentence "Although the IAG requires general compliance with both RCRA and CERCLA, RCRA regulations apply to RIS at OU 13" should be removed. The IAG does not require "general" compliance with RCRA and CERCLA; it requires complete compliance. Both RCRA and CERCLA regulations apply at all OUs. Some have been designated as EPA-lead OUs and some have been designated CDH-lead. Both agencies, however, are responsible for enforcing the requirements of RCRA and CERCLA.

Section 2.0 - General Comments:

1) Maps of the individual IHSSs need to be included in the appropriate IHSS-specific sub-sections. To fully understand the history, waste operations, physical layout, and potential logistical problems of each IHSS, maps of greater detail than Figure 2-1 are necessary.

2) Many of the data tables presented at the end of this section should be moved to appendices.

3) As defined in the Historical Release Report (HRR), Under Building Contamination (UBCs), Potential Areas of Concern (PACs), and Potential Incidents of Concern (PICs) have not been considered in this workplan. DOE should consider which UBCs, PACs, and PICs warrant further investigation and may be logically and efficiently incorporated into this workplan. The Division, along with EPA, will review the HRR in the near future to determine which of the UBCs, PACs, and PICs will need to be investigated as either a part of existing OUs or as a new OU. DOE should try to anticipate our review to the extent possible.

Section 2.0 - Specific Comments:

Figure 2-1: The areal extents of IHSSs 117.1, 158, 171, 186, and 191 are different on this map than was originally presented in CEARP. Also, they are different than what is presented in the Historical Release Report (HRR). Please review these figures and

confirm that they properly reflect the correct IHSS locations.

Section 2.1.1.10: While the Division is sympathetic to DOE's desire to eliminate IHSS 169 from further consideration, we emphasize that, by not investigating this IHSS, DOE is assuming that no further action is justified. This may well be a proper assumption, but the justification of no further action must be proven in order to support a No Action ROD. CDH and EPA delineated many of the items of proof necessary to support no action in our comments to the No Further Action Justification Document for OU 16. Please consider the applicable items to IHSS 169 as appropriate.

Section 3.0: Regarding the last sentence in the first paragraph of this section, cleanup criteria for OU 13 will be based on the risk assessment as well as ARARs.

Please incorporate into the tables in this section the comments forwarded by CDH to EPA in our comment letter to the Benchmark Tables dated June 12, 1992 (Gary Baughman to Martin Hestmark, cc'd to Rich Schassburger).

Section 5.0: This section needs to be expanded to explain how statistical treatment of data will be accomplished (soil data, ground water data, etc.).

Section 5.1.2.5: The rationale for determining the number and location of boreholes and wells in the various IHSSs is possibly inadequate. As mentioned elsewhere in these comments, pre-determining the need and limiting the maximum number of wells and boreholes in any IHSS does not take into consideration, among other things, the IHSS size, contaminant loading, or contaminant type. It is the Division's belief that these types of decisions should be deferred until data from previous stages can be evaluated.

Table 5.1: The Division has several concerns with Section 5.0 that can be summarized in comments to Table 5.1. First, this RFI/RI Workplan was supposed to be formulated after a complete and comprehensive review of all existing information. However, the first RFI/RI Activity listed at the top of Table 5.1 and its associated Decision indicate that DOE feels that compilation and evaluation of existing data is not complete. If this is true, it could be a violation of the IAG. It also throws into doubt the strategy presented in the FSP (who knows if the FSP is over-scoped or under-scoped?). Also, reviewing historical records and data may not be sufficient to evaluate the presence/absence of contamination, as is indicated on the table. If it was, there would be no need for this workplan.

Second, the listed objectives on Table 5.1 are extremely broad. We would like to point out that satisfying the following "sub"-

objectives will be required in the RFI/RI Report:

Under "Characterize Environmental Setting"

Characterization of:

- subsurface stratigraphy and transport characteristics of subsurface materials
- depth to groundwater
- ground water flow regime
- vadose water flow regime

Under "Define Contaminant Concentrations and Extent"

Characterization of:

- any remaining "source" material
- affected media
- location, concentration, type, physical state, and quantity of contaminants
- extent of contaminant migration in each media
- fate and transport of any contamination

In addition, the Division is concerned that, under the Decision column, the sentence "Prioritize contamination sources and transport mechanisms for future studies" indicates a fundamental misunderstanding of the purpose of this RFI/RI. Presently, only one phase of RFI/RI work is planned for this OU. Everyone would agree that, for many reasons, limiting the investigation to only one phase is desirable. This is the reason that "staging" within a "phase" was developed. Therefore, DOE and their contractors must assume that only one phase of investigation will take place and complete and comprehensive characterization of the IHSSs must result.

To be consistent with other approved OU Workplans; Tables 5.1 and 5.2 could be combined.

Section 6.0 - General Comments:

1) Maps of the individual IHSSs need to be included in the appropriate sub-section describing the sampling program for that IHSS. The maps should be the same as those prepared for Section 2.0, but would also show the planned sampling locations.

2) DOE needs to make a commitment at some point in this section that, in all stages of the investigation, sampling will continue to the edge of any contamination anomaly, even if this is past the edge of the IHSS. This is necessary to establish the extent of any contamination.

3) The Division believes that a comprehensive surficial soil sampling program should be developed and proposed in this Workplan. Right now, the only soil samples envisioned are to be taken at the borehole locations before drilling. This is not adequate to fully

characterize the sites within this operable unit, particularly in light of the following items: a) the HPGe survey will not work at recently paved sites and b) no screening survey is planned for metals contamination even though metals could be one of the problem contaminants at many of the sites in OU 13. Therefore, the Division requests that a comprehensive surficial soil sampling program be developed and included in the final version of this Workplan.

4) Related to the previous comment, it is the Division's opinion that an initial surficial soil sampling program should be included in Stage I. Other approved workplans have included soil sampling grids with the radiation survey and soil gas survey grids in Stage I IHSS investigations. On unpaved sites, surficial soil sampling should be accomplished by the methodology proposed in Technical Memorandum 5 to the Phase III RFI/RI Workplan for OU 1 (composite samples taken on a grid using a one square meter template). On paved sites, surficial soil sampling could be done by sampling the substrate in the soil gas probe access hole that will be drilled through the paving. As mentioned previously, both of these sampling procedures must be incorporated into an SOP before this workplan can be approved.

5) An HPGe survey over sites, or portions of sites, that have been paved or re-paved since storage or spillage of hazardous constituents seems pointless given the limitations of the HPGe equipment. The Division does not know what portion of the OU 13 IHSSs would be affected by this HPGe survey limitation, but believes that the HPGe surveys can be limited to only those portions of IHSSs where it remains useful. As mentioned in comment 3 above, the inability of the HPGe equipment to survey paved IHSSs is a compelling reason why surficial soil sampling should be included in the Stage I investigation.

6) The grid spacings proposed for the HPGe survey are substantially tighter than those proposed in the OU 10 Workplan. OU 10 proposed that large IHSSs be surveyed with a 150 ft HPGe grid and small IHSSs be surveyed with a 75 ft grid. In the case of small IHSSs, this 75 ft grid would be augmented with a Sodium Iodide (NaI) survey where buildings and/or access limit the HPGe effectiveness. Please explain the reason for the tighter grid spacing proposed in this Workplan and why the NaI survey has not been considered. In addition, OU 10 proposes sampling vertical soil profiles to confirm the rad surveys and expand characterization of the upper soil horizons. This type of sampling should be added to the workplan.

7) No sampling program is proposed for IHSSs 190 and 191 nor is there any text in Sections 2.1.1.13 and 2.1.1.14 or Appendix A which indicate that DOE is not going to consider these IHSSs further. As we stated in our comment to Section 2.1.1.10, assuming that no further action is justified in these IHSSs is

inappropriate. A "No Further Action Justification" requires proof. We encourage DOE to ensure that the existing information on these sites is sufficient to justify no further action so as to avoid having to revisit these IHSSs.

8) This investigation must establish all of the parameters listed as requirements for RFI/RI Reports in the IAG - namely the nature, extent, concentration, and quantity of contamination as well as determination of the Baseline Risk Assessment. It is difficult for the Division to see how this can be accomplished using only the three stage investigation proposed in this document. If the basic strategy of Stage I is screening and Stage III is very limited groundwater characterization, this leaves only Stage II for completing source characterization and determining the three-dimensional extent of any surface and vadose zone contamination. It is important to remember that complete characterization is the goal. The Stage II investigation currently described in the workplan limits the number of boreholes at a given IHSS to a maximum of three. Depending on the size of the IHSS and the contamination complexity, this three borehole limitation may be insufficient. In addition, the installation and evaluation of boreholes may need to be spread over several stages to fully, but economically, investigate the contamination. Therefore, the Division recommends that a new Stage IIa be inserted into the investigation consisting of only boreholes. Also, Stage III should include the flexibility to continue the borehole investigation if necessary, in addition to the ground water monitoring. To summarize, boreholes in the different stages of a revised investigation would be to:

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| Stage II | - Begin characterization of subsurface vadose zone conditions and contamination. |
| | - Transect and sample anomalies identified by the soil gas and rad surveys. |
| Stage IIa | - Continue and, if possible complete, assessment of the presence/absence and nature/extent of contaminants in the sub-soils. |
| Stage III | - Complete assessment of contaminants in the subsurface, if necessary. |

9) Portions of several of the OU 13 IHSSs lie beneath buildings. Since these portions of the IHSSs cannot be investigated and evaluated, they will need to be monitored until the buildings are removed. Specifically, this means that a sufficient number of ground water monitoring wells will need to be installed to determine if any contaminated water migrates out of the unit. While monitoring of this type is not within the scope of the RFI/RI investigation, determination of the extent and location of any present or past release from the unit is within the investigation scope. Therefore, we urge DOE to consider how the FSP could be modified since the logistical implementation necessary to satisfy

both the RFI/RI and monitoring concerns (installation and sampling of monitoring wells) could be the same.

10) Thought needs to be given to the number of Stage III groundwater monitoring wells and whether the number proposed is sufficient to completely characterize any contamination present. The Division believes that the proposed program is only sufficient for those small IHSSs where no contamination has been found in the preceding stages. For contaminated and/or large IHSSs, a more extensive groundwater monitoring program will almost certainly be required. In addition, the Division is concerned that sampling each well once will not create a statistically significant sample set from which to 1) discern the presence or absence of contamination and 2) calculate risk.

11) Sampling the paving material (concrete or asphalt present during the waste storage or spill occurrence) should be accomplished in Stage I. These samples need only be analyzed for radionuclides. The other contaminants, being RCRA regulated, would be judged to be present/absent based on paving rinsate.

12) The Division believes that some sort of vadose zone characterization will be necessary within this RFI/RI. We also believe that this can be coordinated with the other industrialized area OUs. Lysimeters and tensiometers have been proposed in OU 10 and OU 12. Whether the sampling frequency already proposed in these OUs is sufficient for OU 13 has not been evaluated by the Division. However, we would urge DOE to make this evaluation.

13) Each activity and sampling methodology proposed for use in this workplan needs to have a specific section of the text describing the strategy and methodology preferred. This should be done for activities proposed in all three Stages of the investigation. For instance, when soil samples are taken, the workplan should describe whether composites or grab samples are planned and, if both are to be used, a description of when each method applies is required. The sampling plan for boreholes should also be described explaining how often VOA, metals, and rad samples will be taken. Other activities needing explanation would include the HPGe survey, soil gas survey, asphalt and concrete sampling, vertical soil profile sampling, sediment and surface water sampling, and BAT sampling. Even though many of these activities will be conducted in later stages, the workplan must act as the central umbrella document and can be referenced in later technical memoranda.

Section 6.0 - Specific comments:

Section 6.0: The Division believes that the list of intended data uses and objectives of this RFI/RI listed in the second paragraph of this section should match the list of DQOs presented in Table

5.1. Table 5.1 should be revised to more closely correspond to the list presented here.

Section 6.1.2: The results of the Stage I investigation and a presentation of the Stage II sampling strategy should be summarized in a Technical Memorandum presented to the regulatory agencies prior to commencing Stage II sampling.

Section 6.2.1.1: Even though Section 2.1.1.1 indicates that there is no record of radioactive material storage at IHSS 117.1, the Division agrees that the HPGe radiological survey is prudent. Section 2.1.1.1 indicates that IHSS 117.1 was not paved during use, though now the southern portion has been paved. This is a good example of how the HPGe survey will not be able to successfully screen for radiological contamination over the entire IHSS. The Division believes that taking soil samples is the only way to survey for radionuclides beneath the paving. In addition, Section 2.1.1.1 indicates that the area contains (or contained) scrap metal, non-radioactive waste, and building construction debris. Neither the soil gas or HPGe surveys screen for metals. However, based on the waste storage history of the site, metals are a legitimate possibility. Therefore, soil samples from both the paved and unpaved portions of the IHSS, analyzed for radionuclides and metals, would seem appropriate.

Sections 6.2.1.2 and 6.2.1.3: Previous comments regarding the HPGe survey and the need for surficial soil sampling apply to these IHSSs as well.

Sections 6.2.1.4 and 6.2.1.5: Surficial soil sampling for metals is required in these IHSSs based on their histories presented in Sections 2.1.1.4 and 2.1.1.5.

Section 6.2.1.6: This section is a good example of why site maps for these IHSSs are necessary. Figure 6-2 shows that this IHSS lies almost completely under building 123. The text states that the soil gas and radiological surveys will be run on 20 and 10 foot grid spacing respectively and that the surveys will be performed around the perimeter of building 123 to the extent possible. The text makes an effort to describe survey extents, but this description alone is not sufficient. A site map, used in conjunction with the survey descriptions, is required.

Section 2.1.1.6 states that most of the contamination in this IHSS probably came from a leaking original process waste line (OPWL). Where, within the IHSS, did this line run (ie., where can we expect most of the contamination to be)? Can the sampling program concentrate on a specific suspected area?

Sections 6.2.1.8 and 6.2.1.9: Previous comments regarding the HPGe survey, possible metals contamination (beryllium in IHSS 157.1) and the need for surficial soil sampling apply to these IHSSs as well.

Section 6.2.1.10: The discussion of this IHSS in Section 2.1.1.11 mentions an open sump in the area which has had standing water in it during several inspections. The standing water has had an oily sheen observed floating on the water surface. It seems to the Division that some sort of sampling of the sump water and some determination as to the source of the water would be warranted for Stage I.

Section 6.2.1.11: In light of the possibly extensive soil contamination at this site, previous comments regarding the need for surficial soil sampling apply to this IHSS as well.

Table 6.1: The format of this table needs to be changed. The applicable SOPs for each procedure should be presented on a different table and can be removed from Table 6.1. The analytical program should also be presented on a different table. These columns should be replaced on Table 6.1 with columns for sample location and sample purpose.

Figures 6-2, 6-3, 6-4, and 6-6: IHSSs 117.1 and 157.1 are shown with different areal extents on these figures than was originally presented in CEARP Phase I and is currently shown in the HRR. Please revise these figures and ensure that the sampling programs proposed for these IHSSs investigate the proper area.

In addition, the areal extents of IHSSs 117.3, 128, 134(S), 158, 171, 186, and 191 presented in the HRR are different than the outlines presented on these figures. Please revise these figures to reflect what is presented in the HRR.